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## JP UTILITY MODEL 43-24548-B

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## SPECIFICATION

Title: FABRIC FOR FIRE PROTECTION GARMENT

## Brief Description of Drawings

Fig. 1 shows a cross-sectional textile structure of a fabric for fire protection garment of the present device, and

Fig. 2 shows an example of a fire protection garment utilizing the fabric of the present device.

## Detailed Explanation of the Device

Passage 1

--The present device relates to a fabric for fire defense garment formed from multi-layered fabric having a surface layer or both surface layers thereof formed from polyfluoroethylene, etc. and exhibiting excellent heat-resistance and noninflammability.--

Passage 2

--Namely, the present device relates to a fabric for a fire protection garment characterized in that the fabric is a multi-layered woven fabric formed from a front ply formed from warp, weft and joining yarns comprising heat-resistant fibers such as polyfluoroethylene fibers and a back ply formed from warp and weft yarns comprising mixed spun yarns comprising a mixture of synthetic fibers having excellent heat resistance with cellulose fibers, in such a manner that air spaces are formed between the front ply and the back ply, and naps are formed on the back surface of the back ply by rising treatment.

The polyfluoroethylene fibers used for the front ply of the fabric for the fire defense garment of the present device are synthetic fibers produced by polymerize-spinning tetrafluoroethylene:  $\text{CF}_2=\text{CF}_2$ , produced from, as materials, fluorite, limestone and chlorine; having a structure represented by  $(-\text{CF}_2-\text{CF}_2-)_n$ , a specific gravity of 2.3 and, a softening temperature of  $300^\circ\text{C}$ ; and exhibiting excellent resistance to acids and alkalis and heat resistance.--

### Passage 3

--Also, in place of polyfluoroethylene fibers, heat-resistant mineral fibers such as glass fibers and asbest fibers can be used. Further, the back fabric is formed from mixed fiber spun yarns of heat-resistant synthetic fibers such as polyester, polyamide and polyvinyl chloride fibers with cellulose fibers which have a good heat resistance similar to that of the heat resistant synthetic fibers.--

Passage 4

--The present device will be further explained in detail by referring the attached drawings below.

Fig. 1 shows an example of the multiply woven fabric of the present device. A front ply A is formed from front warp yarns 1 and 2 and front weft yarns which comprises super heat resistant polyfluoroethylene fibers which are resistant to a high temperature of 300°C or more. Thus, the resultant front ply can completely protect the body from flames in comparison with a conventional fire protection fabric for a fire protection garment formed from a thick natural fiber woven fabric treated with a heat-resistant, flame-resistant resin. Further, the back ply B is formed from back warp yarns 4 and 5 and back weft yarns 6 comprising mixed spun yarns consisting of a mixture of synthetic fibers having good heat resistance with cellulose fibers, and thus has appropriate elasticity, and the back ply B exhibits a form-retaining effect at the back surface of the outer fabric of the garment. Also, the back ply can easily be raised.--

Passage 5

--The textile structure of the fabric is a double weave structure in which the front ply A and the back ply B are joined to each other with joining yarns 7 formed from the same material as that of the front warp yarns 1 and 2 and the back weft yarns 3, and thus air spaces formed between the front ply A and the back ply B serve as a heat-insulator. Also, as the back ply which comes in contact with the body is raised, heat in the air spaces is not

transmitted to the inside of the garment, so that the wearer is well protected from heat.--

Passage 6

--Scope of Claim for Utility Model Registration

A fabric for a fire protection garment characterized in that the fabric is a multi-layered woven fabric formed from a front ply formed from warp weft and joining yarns comprising heat-resistant fibers such as polyfluoroethylene fibers and a back ply formed from warp and weft yarns comprising mixed spun yarns comprising a mixture synthetic fibers having excellent heat resistance with cellulose fibers, in such a manner that air spaces are formed between the front ply and the back ply, and naps are formed on the back surface of the back ply by rising treatment.--

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る接結糸7により接結した二重織組織であるため該表地Aと該裏地Bとの間に形成される空気層により熱気が遮断され、かつ身体に接する裏地Bが起毛されているから該空気層内の熱気が内部へ移動せず着用者を完全に熱気から保護することができる。

次に第2図は、上記の如き構成し、加工を施した織物を所要の形に裁断して縫製した消防服である。

本考案は上記の如き構成を有するものであるから表面を樹脂加工する必要がなく、薄地の二重織でも充分耐熱性を有するものであるから、消防服

に使用すると非常に軽量でかつ着心地の良いものとなり、消火作業を迅速に行なうことができる。

また、本考案は消防服以外に高熱作業現場、例えば溶鉱炉や溶接等の作業服にも使用される。

#### 実用新案登録請求の範囲

表地経緯糸および接結糸にポリフルオロエチレン繊維等の耐熱性繊維糸、裏地経、緯糸に耐熱性に優れた合成繊維もしくは合成繊維と繊維系繊維との混紡糸を使用して、該表地と該裏地との間に空間を形成するが如き多層織物に形成せしめ、次で該織物の裏地表面を起毛処理により毛羽を形成せしめたことを特徴とする消防服用生地。

Fig. 1

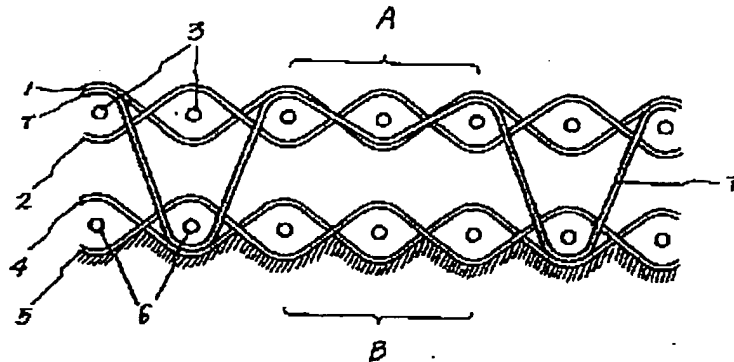
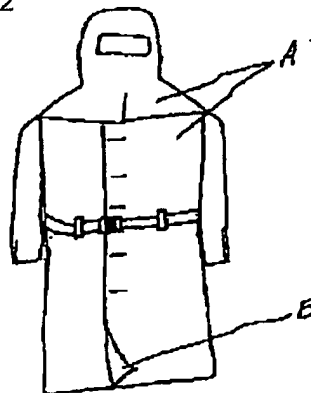


Fig. 2



- A: Front layer
- B: Back layer
- 1, 2: Front warp yarn
- 3: Front weft yarn
- 4, 5: Back warp yarn
- 6: Back weft yarn
- 7: Joining yarn